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Attorney Docket Number: 501.36884X00

Sir:

Attached please find the application papers of Masayuki INOUE, Koichi YONETA, Tetsuharu INAMITSU, Shigeyuki ITOH, Yutaka TAKAMI, Kenji MATSUMOTO covering new and useful improvements in POINT MANAGEMENT SYSTEM, comprising:

Specification, Twenty (20) Claims and Abstract of the Disclosure (21 pages)

English language, Combined Declaration and Power of Attorney (2 pages)

Six (6) Sheets of Drawings Showing Figures 1-6

Assignment and Recording of Assignment Letter

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Application Number	
Filing Date	February 26, 1999
First Named Inventor	Masayuki INOUE, et al.
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### Title of The Invention

Point management system

### Background of The Invention

This invention relates to the system that manages the point issued when goods are purchased. Especially, this invention relates to a system that manages a point by using an IC card.

It is well known that a point is given to a customer according to a purchase of goods or service and a customer gets a privilege such as reduction of the price and receiving a gift, according to points collected by a customer. There are some concrete methods described below in this system.

A customer collects points by sticking the stamp like the service ticket or the coupon ticket attached to the goods onto a pasteboard. The service ticket and the coupon ticket are given at the time of paying, or are attached to goods. When points are collected more than predetermined points, the customer can be given service such as a discount and get a gift by exchanging the points.

In case of sticking a service ticket on a pasteboard, most of the customers don't carry the pasteboard, and carry the service ticket back to the home and stick it onto a pasteboard. This service ticket is so small that the customer often loses.

In case of stamping a point on a pasteboard, if a customer doesn't carry the pasteboard at the time of the shopping, a store doesn't stamp point. The store corresponds to that case by following methods. The store issues a new pasteboard, or stamps a point on receipt to assure stamping on a pasteboard at next visiting. In case of issuing a new pasteboard, the points in several pasteboards sometimes cannot be summarized with one pasteboard.

There is also a system of issuing magnetic stripe card or an IC card for a customer. The number of points is recorded in these cards whenever the customer is shopping. As the merit of this system, a pasteboard is not necessary and points or using records are stored in the not only the card but also an apparatus for reading and writing from/into the cards. In point managing system by using a pasteboard, there is no help plan when a customer loses the pasteboard. However, in this system, a customer has a merit that it is possible to reissue a card and to fill the past record by using the memory of apparatus. A manufacturer and a store have merits that a customer management is enabled, and points and using records can be used as information for a sales promotion.

Other than the above-explained cards, as the card having a bar code is used. In case that a bar code is used, points are stored in reading and writing apparatus of the store and administered centrally. The point cannot be managed in the card.

The customer's merit of using the bar code cards is same as that using a magnetic or an IC card, at the point of using card.

In the system mentioned above, even if the system uses a card, many manufacturers and the stores are operating an original system by using the each card that does not have compatibility. But it is troublesome that a customer always carries all of the cards for each stores. In addition, a customer may forget bringing a card as same as in stamping point system. And, as for the enlargement of apparatus in the store or introduction of POS system or other system, becomes necessary for managing many customers. Against introduction of a system on which costs like the above-explained system, a method of using a multifunctional telephone is invented as described in the Japanese patent Laid-open publication 6-96096 and 6-110905.

Further a point management system in case of the shopping by a credit card is available. In this system, a point is sent with the use specification later. A customer sticks a point stamp on a pasteboard by centerized system. This system has merit that a point is certainly sent to a customer. This system can deal only point issued by the credit company. But this system can not deal a point issued by a manufacturer and a store. It is not practical that the store does same service, because the cost of sending point to each customer is expensive.

### Summary of The Invention

The manufacturer and the store are providing service by using a point for a customer by the various conventional methods that are explained as above. Therefore, the customer has a problem of having to manage many kinds of pasteboards and cards. And the point is sometimes used by the method that is in common among related manufacturers and related stores, a shopping street, etc. It expects to be a system of being able to manage the use achievement of every each use store even if a point is commonly controlled and applied.

On the other hand, the point collected on a pasteboard or a postal card is used for exchanging into the goods, or receiving goods by drawing lots other than using a point in the store.

The purpose of the present invention is to solve above problems and to manage points provided by plural manufacturers and plural stores by one card.

Further purpose of the present invention is to manage a group point commonly managed in the related stores, etc. besides individual point provided by each manufacturer and each store.

Further purpose of the present invention is also to send a point by transmitting the point that stored in a card.

To achieve the above objects, the point management system of this invention

has a point system management apparatus that administers the whole point system, a reading and writing apparatus which reads out/write the data from/into an IC card, and an IC card which has a memory having plurality of point record areas that store point data transmitted from the said reading and writing apparatus and a point management application that controls the access of the above memory to the point record area.

The point system management apparatus registers and controls manufacturer that operates a point system, and issues a cryptograph key to access the above point management application that is peculiar to every manufacturer at the time of registering. The reading and writing apparatus reads and writes the point data that is issued according to customer's use by using the cryptograph key given from the point system management apparatus.

This cryptograph key is a key of each manufacturer, or the key combined with the cryptograph key and other information such as a manufacturer code.

The point management application records a point in an area to record within the several point record areas by identifying this information. The point management application is independent from the manufacturers and the point management application can be used commonly for all manufacturers and a store registered to the point system management apparatus, and unnaturally manages each point. The point management application allows reading and writing only the data of the area that corresponded to a used key.

It is also thought that several different point applications for each stores are installed to use an IC card installed multiple applications. According to the present invention, a point application manages points of several stores commonly, there are following effects. One common point application is installed, another point application become unnecessary. Therefore it can be prevented for program from duplication and an IC card can be used efficiently. Furthermore in the case of managing a point by using several point management applications, instructions the application of which store is used must be ordered from the outside. According to the invention, troublesome work that specifies the application of which store can be deleted because application automatically determines area to store by using one application. In addition, there is a problem that it is difficult or cannot do to ride together of a point when a point is managed in the separate application. If an application manages a point is common, a group point into which the point of some stores was integrated can be easily created. And, service that integrates the point of several stores only in a certain term can be easily done.

### Brief Description of The Drawing

These and other features, objects and advantages of the present invention will become more apparent from the following description when taken in conjunction with the accompanying drawings wherein:

Fig. 1 is a structure showing a first preferred embodiment of the point management system of the present invention.

Fig. 2 is a block diagram showing structure in the memory of the IC card that is used for the first preferred embodiment.

Fig. 3 is a structure showing a second preferred embodiment of the point management system of the present invention.

Fig. 4 is a structure showing a third preferred embodiment of the point management system of the present invention.

Fig. 5 is a structure showing a forth preferred embodiment of the point management system of the present invention.

Fig. 6 is a structure showing a fifth preferred embodiment of the point management system of the present invention.

### Detailed Description of Preferred Embodiments

Fig. 1 is a whole structure of a point management system showing a first embodiment of the present invention. This point management system is comprising from customer's IC card 1 that has a point management application 13, a point system management company 3 and a reading and writing apparatus 5 set up in the store participating in this system.

The IC card 1 has a memory 11 and the point management application 13 provided by the point system management company 3. For example the point management application 13 is a software program.

The point management application 13 has at least following two functions. First function is cryptograph processing against the key data that is used when accessing the application 13. Second function is recording a point to the memory 11. Therefore, the point management application 13 has a control unit 131, a cryptograph processing unit 132 and a point data processing unit 133. The reading and writing apparatus 5 can be accessed the point management application 13 by using each key data send by several manufacturers or data combined the key data and one or more other information data provided by several manufacturers. The point management application 13 has a function allowing reading and writing data only from/into point storage area corresponding to the used key data.

The point system management company 3 has a point system management

apparatus administering the whole point system. This point system management apparatus has the function that controls and registers the A store, the B store and the C store respectively, and the function that issues key data that is a particular key for each store. When the point management application 13 described later is used, these key data are used. A cryptograph key and a registration store number are returned as key data in this embodiment. Unitary management of a registration store number and a cryptograph key by the point system management company 3 can prevent from issuing duplicated registration store number and cryptograph key.

A reading and writing apparatus 5A, 5B and 5C set up in each store has the function that uses the IC card 1 and the point management application 13 stored in the IC card 1.

In order to register in the point system management company 3 and to be given the service in the store that uses the point system of this company, the customer receives the IC card 1 having a cryptograph key A provided from the point system management company 3.

In case a customer receives a point from the A store, the IC card 1 of a customer is installed in the reading and writing apparatus 5A of A store. At this time, the reading and writing apparatus 5A sends encrypted data to the point management application 13 and accesses by using the cryptograph key A read out and a registration store number.

The crypt data processing unit 132 decrypts crypt data sent according to a rule predetermined by the point system management company 3 in advance. The control unit 131 determines whether the accessed store is a registered in the right member or not based on the decrypt data, and obtains a registration store particular or number.

If this IC card 1 has been used in the past in this store, the point storage area that corresponded to a registration store number is already secured to memory 11.

If the use of the IC card 1 in this store is first time, the point management application 13 secures a storage area to store the point of the A store newly to memory 11. The A store can access a point storage area for the store by the above procedure and reading and writing a point.

The point is sent from the reading and writing apparatus 5A to the point management application 13 with a command for adding. The point data processing unit adds new point to the point that already exists. The control unit 131 restores processed point data in the point storage area corresponding to the transmitted crypt data.

In case a point is used, the number of points to be withdrawn is sent from the reading and writing apparatus 5A to the point management application 13 with a command for subtracting. And then, this application 13 stores the point that is



subtracted requirement points from the point that already exists, again.

Likewise with the A store, the B store and the C store access the point management application 13 by using each cryptograph key and a registration store number and manage point respectively.

The point management application 13 prohibit a operation of the point of mutuality by the stores because an access is allowed only to the area that corresponded to a registration store number when this application was accessed.

As explained above, it is possible that the management of points of several stores in one common IC card.

The following example can be thought as using this system. In case that the management company 3 is a participation store, and the store 5 is a participation store that can use the card of a credit company. In case that the management company 3 is the cooperative union in a shopping district, the store 5 is the member of the union. In case that the management company 3 is the parent company of a group company, and the store 5 is the related company, for example, a super market, or a toy store. In case that the management company 3 is a petroleum company and the store 5 is a gas station. In case that the management company 3 is a soft drink manufacturer, and the store 5 is a vending machine. In case that the management company 3 is a company that manages airline companies, the store 5 is each airline-company and the point is a mileage. There may be other various situations to use this system.

By using Fig. 2, the storage structure of memory 6 in the case of extended first preferred embodiment is explained.

In this embodiment, areas 11-2A and 11-2C, which store the history of using besides points, are secured in storage areas 11A for the A store and 11C for the C store.

As it is mentioned above, storage areas 11A, 11B and 11C are secured for each store in memory 6. Each area of store has the area storing store's code, the area 11-1 storing a point and the area 11-2 storing the history of using is prepared according to a necessity. It is possible to mix the store's area having the using history area (like the A store and the C store) and the store's area that does not have the using history area (like the B) in 1 card by using a flag, etc.

The procedure until the access of each store to the point management application 13 in the IC card is similar to the first preferred embodiment. The reading and writing apparatus 5A sends point data to the point management application 13 to write a point likewise with the first embodiment. At this time, the point management application 13 updates the point data of the point area 11-1A of the A store and adds one data of using history storage area 11-2A. And, the function that operates nothing to the using history storage area while subtracting points at the

time of using a point.

A grasp of the use number of a customer is enabled regardless of the residual quantity of a point by having above function. This function can supply a fault that the use number of a customer cannot be known from the point because the point is reduced by using, and the IC card can be used to the customer management.

To perform this function, the reading and writing apparatus 5 transmits a new command which access the using history storage area or point management application manages an accessing area according to subtracting number. The reading and writing apparatus 5 can operate data independently of the rule of the point management application 13. And, several areas storing a point in every store can be secured in the case of expanding the structure further. For example, the point in a limited term and a normal point can be separately managed.

And, in case that the point management application 13 is accessed, a method of an allowance of only reading is also possible a method of not making the point of other stores access at all as it was described in above. By doing like this, the point of other storage area can be confirmed at a store nearby, and it becomes merit for the customer.

And by providing a key to read the point of all stores in common, confirmation of a point balance is enabled by using all apparatus that can read an IC card. If the electronic money by an IC card spreads, an apparatus to confirm a balance in the card spreads into individual person. To confirm the balance, the IC card reading and writing apparatus that can be connected to the personal computer in a home can be used. Therefore, without going to a store, the customer can easily confirm a point balance.

A cryptograph can be simplified depending on its necessity. For example, if the key data that each store was issuing individually is made in common, the cryptograph can be simplified. If an IC card is accessed in the combination of a common key and a registration store number, even if key data is common, a store can be identified. It is used only in the small and closed area, it is possible to apply it.

The same function can be also performed by a method of using the table that registered in advance without using a cryptograph key. When the point system management company 3 gives the IC card 1 to a customer, table data is added to point management program 13. A confirmation of the store, which is done by the point management program 13, can be determined by judging whether the store is registered to this table. And there is another method. It use this table registering the cryptograph key of every manufacturer and store when point management program 13 decodes cryptograph.

Another way to use the table may be possible. In case each manufacturer and

the store that operate a point system respectively first access an IC card, writing an element that is a key such as a cryptograph key table area from the reading and writing apparatus to a table area. This method can solve the problem that renewal becomes necessary in such case, a store is added newly by an original table method.

By using Fig. 3, the structure of the point management system that is the second preferred embodiment of a present invention is explained. This preferred embodiment use the IC card that can store several applications in an IC card. In this preferred embodiment, a point system is combined to the method that each store has transacted in conventional way with a customer by using an IC card, etc.

The point management system of this preferred embodiment is comprised by an IC card 1 of which can store several applications, a point system management company 3 and an reading and writing apparatus 5C of C store, an reading and writing apparatus 5B of B store, and an reading and writing apparatus 5A of A store.

It is possible to store a plurality of applications in the IC card 1. The IC card 1 has a memory 11 for storing points, the point management application 13 provided from the point system management company 3, and manufacturer application that corresponded to the reading and writing apparatus 5 are on the IC card 1. The manufacturer application is the original application of each store to use service that is peculiar to each store. For example, it is application A 15A of store A, application B 15B of store B and application C 15C of store C. Memory 11 is also used as a data storage area of an application in IC card 1.

This application is to record the data that are the number of times, age of a customer and what goods purchased by each store in a personal data area 11-3.

The point management application 13 has at least 2 functions. The first function is cryptograph processing against the key data that is used when accessing an application. The second function is managing a point to memory 11. The point management application 13 has a control unit 131, a cryptograph processing unit 132 and a point processing unit 133. Using several manufacturers' key data or combination data of key data and one or more other information, the point management application 13 can be used by the reading and writing apparatus 5.

The point management application 13 allows reading and writing operation only from/into data area that corresponded to used key data.

The point system management company 3 has a point system management apparatus capable for controlling the whole point system. This point system management apparatus has the function that controls and registers the A store, the B store and C store, and the function that issues key data that becomes a key that is particular to each store. In case the point management application 13 describing later is used, these key data is used. In this preferred embodiment, a cryptograph

key and a registration store number are returned as key data.

The reading and writing apparatus 5A, 5B and 5C of each store has the function that uses the point management application 13 stored in the IC card 1 as same manner to the first preferred embodiment. And the reading and writing apparatuses 5A, 5B and 5C also have the function that uses the manufacturer application that provided by each store and corresponded to each reading and writing apparatus. The relationships between the point system management company 3 and each A store, B store and C store is the same as the above first preferred embodiment. And the function of the point management application 13 is also the same as the above first preferred embodiment.

When it is confirmed that a customer is a regular customer from the number of customer's using time, the application may works on a point application to double a point, besides storing individual information in an individual data area. If this application is mounted, the service that is original to the store can be developed. This applications A, B and C have a compliantly to the case less concrete function other than the above.

A credit function is used for example, A store in the above system. The reading and writing apparatus 5A has a function that is necessary for transactions with a credit company. And then, the application A 15A in the card that corresponded to this is accessed by a credit function.

This application A 15A has the function of management of the individual data for a reference and control of credit use history. When a customer does shopping by using credit in the A store, the reading and writing apparatus 5A communicates with the application A15A, and takes in the data of a card, and referees the data to the credit company. If it is possible to transact it, the reading and writing apparatus 5A does a procedure with a credit company, and processes the data of the using history storage area by accessing the application A 15A. The reading and writing apparatus 5A issues a point according to amount of the use.

Then, an application, which the reading and writing apparatus 5A accessed, is changed into point management application 13 from application A 15A. As it was described to the first preferred embodiment, point management application 13 adds a point to point area 11-1A of the A store.

As described the above, even in case shopping by credit as the conventional way is done, it is possible to manage the point in the same card. And, in case that the IC card 1 is the card having a function of electronic money, the application A15A is an application for electronic money. After paying the price of goods in the electronic money, by using application A, the point application is accessed, and a point is recorded.

Then, in the case of the B store is a gas station or a rental store, the example of installing application B15 B in IC card 1 as a member proof that is being applied is explained. The reading and writing apparatus 5B of the B store accesses application B 15B of the IC card 1 and acquires member information. After doing a process of rental of the day, the reading and writing apparatus 5B changes an application into the point management application 13. And then, the reading and writing apparatus 5B writes a point according to a use amount in point area 11-1B of the B store, and processing is ended.

In the type of business that conventionally managed a point with a stamp, one card can serve both as a member proof and a point pasteboard.

In addition, if the C store is a penny arcade, an amusement arcade or a gambling store, the example application C15C a function as a prepaid card at the time of borrowing of a coin is explained.

The reading and writing apparatus 5C is installed in a game machine or a coin lending machine. When a customer install IC card 1 to the machine, the reading and writing apparatus 5C accesses application C 15C and acquires a balance for lending of a coin. After determining this information, the coin of the amount that a customer specifies is rented.

The reading and writing apparatus 5C can write a point according to the lending amount of a coin in the point area of the C store by the reading and writing apparatus 5C does access to point management application 13 after lending of a coin is completed. The coin obtained in the game is calculated in the coin totalization machine of the C store. By inserting the IC card 1 in this apparatus, a coin totalization machine can access point management application 13 and can calculate the number of coins. The coin totalization equipment writes a point according to the totaled number of coins in point area 11-1C of the C store, and a process of totaling a coin is ended.

The point that is issued in the C store can be exchanged to the giveaways such as a tobacco and a chocolate in the value that is equal to the number of coins obtained in the game of the C store. If this invention is used in the store that conventionally managed the number of coins that is used for a giveaway exchange by using a receipt or a magnetic card, lending of a coin and totalaization of a coin can be managed by one card.

By using Fig. 4, the system structure of the point management system in the internet using a telephone line, that is the third preferred embodiment of a present invention, is explained. This point management system has an IC card 1, a point system management company 3, a reading and writing apparatus 5A in an internet store A, a reading and writing apparatus 5B in an internet store B and a personal

computer 7 in an individual home that has an IC card reading and writing apparatus.

The IC card 1 has the point management application 13 provided by the point system management company 3, an exclusive application A 15A in the card for the internet store A to use service that is particular to each store and an exclusive application B 15B in the card for the internet store B.

The exclusive application A 15A in the card is installing cryptograph key A issued exclusively for the internet store A from the point system management company 3 and the electronic money settlement of account function. The exclusive application B 15B in the card also is installing cryptograph key B as same as the application A. The IC card 1 has the memory 11 to store a point. This memory 11 is used as a data storage area of an application in IC card 1.

A personal computer 7 has a reading machine for the IC card 1, an exclusive application A 71A in the apparatus to access a exclusive application that corresponded to each store and an exclusive application B 71B in the apparatus. That is, the personal computer 7 has the function of accessing an internet store through a telephone line and the function of accessing the application in the IC card 1.

The internet store has the function of receiving a order from the customer through a telephone line and the function of issuing point according to a fee that is necessary at the time of a registration or the order.

A relation with the point system management company 3 and the internet store A or the internet store B is the same as the above first preferred embodiment. The function of the point management application 13 is also the same as the above first preferred embodiment.

If a customer purchases goods in the internet store A dealing goods sale by electronic money, by using the personal computer 7, in the above system, the customer installs IC card 1 in the personal computer 7 and orders the goods through a telephone line. The internet store A, which received this request, accesses to the personal computer 7 by using the reading and writing apparatus 5A, and the exclusive application A15A in the card of IC card 1 is accessed. The exclusive application A 71A in the personal computer 7 controls the access to the exclusive application A15A in the IC card 1 and the reading and writing apparatus 5A in this internet store A.

The reading and writing apparatus 5A of the internet store A transmits the price information of goods to the personal computer 7 and requests a transmission allowance of electronic money to a customer by using the IC card 1. When a customer allows payment by the personal computer 7, an electronic money is transmitted from the exclusive application A15A in customer's IC card 1 to the reading and writing apparatus A 5A of the internet store A. After receiving of electronic money is completed, the internet store A issues a point according to the

price of goods through the personal computer. Because a point is transmitted through a telephone line, the point may be tapped and falsified. To prevent the tapping and the falsification, the point that is issued in the internet store A is processed cryptographic.

The point is sent to personal computer 7 through a telephone line. The exclusive application A71A in the apparatus of IC card 1 sends a transmitted point to the exclusive application A15A in the card as it is. The exclusive application A 15A in the card decodes a point and sends a point decoded with the cryptograph key A that is particular to the internet store A to the point management application 13.

The point management application 13 decodes transmitted cryptograph key A by a predetermined cryptograph decipherment in the point system management company 3, and store a point in the area of specification.

In this system, the reading and writing means of personal computer 7, that directly reads and writes an IC card 1, does not have the point issuing function of IC card reading and writing apparatus 5 as shown to the above preferred embodiment. Because it causes the forgery of the point to have the function of point issue in the customer's apparatus it causes the forgery of the point. In the use method like this example, the possession of issue function of a point by the host side is better.

The point received by the internet shopping can be used as the discount at the next time of purchase and an exchange to a gift, such as original goods, by doing a reverse procedure.

Then, the example that the internet store B is a license issuing organization that does issue and management of a license and to renewal is explained. The IC card has a renewal application 15B in the card to do update of the license.

When a license renewal request is received through a telephone line from the owner of a license, the internet store B accesses exclusive application B71B in the apparatus. The exclusive application B 71B in the apparatus has the function that transmits and receives the data that is exchanged between the license issue organization and the renewal application 15B in the card.

The license issuing organization acquires the information of license owners such as a name, birth date, a legal residential address, an issue date and a valid deadline from renewal application 15B in the card of IC card 1. After doing information registered by a license issuing organization, a comparison and an interpretation, the license issuing organization renews a valid deadline.

If at the time of renewal, a change of a name, a legal residential are necessary, a personal computer 7 may be used for inputting these data.

And, the license publication organization can access the database of a public office, and record the latest individual information.

If a certification photograph is necessary, an user connects a digital camera to the personal computer 7, and sent a image data to the license publication organization through a telephone line. The captured image data also is stored in the IC card 1.

The method of being able to draw out electronic image data only by a special method is more effective than sticking the photograph on a license directly, in the point of counterfeit prevention.

Likewise with the above example, the renewal cost can be paid in the electronic money.

At the time of a license renewal, the license publication organization issues the point that based on a traffic point system of a license to area exclusively for a license publication organization in IC card 1.

In the Japanese traffic point system, a specified point corresponded to a traffic violation or an accident is given. When the points reach a certain level, the driver's license will be suspended. The police increases or decreases a point by considering a driving situation after a subtraction and driver's previous conviction

In this preferred embodiment, the point is issued by considering information such as the renewal date, and whether a predetermined period has past after the violation or not. The license issuing organization issues the point at instance.

In case a driver violates a traffic rule, the police connect from the vehicle of the police to a license issuing organization by radio. And then, the police subtract a point in the IC card of a driver. Therefore, the point information of a license publication organization and the point information of an IC card can be kept always equal condition. When a driver's license is refereed from the police's car or a police office or station, time for referring can be shortened in comparison with the reference by communication, because only reading an IC card directly can reference the license.

In the above preferred embodiment, the example of the point management system that cannot access to a point by other stores was explained.

A point may be commonly used in several stores, a manufacturer and parties.

By using Fig. 5, the fourth preferred embodiment is explained. The fourth preferred embodiment is the point management system using a point by several stores in common.

In this preferred embodiment, several stores registered in the point system management company can jointly use a point and issue a point. The system structure of point management of this embodiment is similar to the structure of the first preferred embodiment. However, the memory of this embodiment is different from the memory of the first embodiment. The point storage area of memory 11 is split into 11 G of point areas 11A - C exclusively for each store and the group point area that is commonly used in several participation stores. And, the function of a



point management apparatus is also different from that of the first embodiment. The point system management apparatus has the function that registers and controls the manufacturer that operates a point system. In addition, the point system management apparatus has the function that controls several manufacturers as a group and issues cryptograph key data for a group to access the point management application that is particular to each group.

The point system management company 3 has the function that registers the A store, the B store and each C store, and the function that issues cryptograph key data, which is particular to each store. Moreover, point system management company 3 has the function that issues a group key that is particular to a group to access a group point. The group point co-owned in store A, store B and store C can be used in common. And, a group point can be issued by each store.

The point management application 13 has the function that encodes a group key and has the key data exclusively for each store, and the function that manages a point to the memory.

And, the IC card 1 includes the point management application 13 provided by the point system management company 3 and the memory 11.

When a customer does shopping in the A store by using this IC card 1, the A store issues the point that corresponded to a goods purchase amount to the IC card 1 of a customer. The reading and writing apparatus 5A of the A store issues the point that is particular to the A store and the group point that can be used in the B store and the C store simultaneously.

A process of memorizing exclusive point for the A store to the IC card 1 is similar to the first preferred embodiment.

To issue a group point, the reading and writing apparatus 5A sends a group point with the group key A to the point management application 13.

By the same manner as the point that each store issues, point management application 13 writes a point sent by the apparatus in the group point area 11G of memory 11. By unfolding group key A, a group number can be confirmed. A method of managing several groups can use the method of discriminating each store as it is.

And, the point and the group point of each store can be separately issued. It is also possible to issue a point for the store and a group point independently. When either one the point is issued, the point can be written to the other point automatically by modifying a point management application in the card.

When the group of the A store, the B store and the C store implements a campaign of the prize of an overseas trip, they can use this card. And, in case one group of a shopping town does a year end lottery sale, the shopping district can use a

card.

By the each store issue the group point during the campaign term, the group point can be used instead of a conventional lottery ticket.

The store do new service, that increases the point of each store during special sale, and does lottery separately with the group, because the store manage grope point and each store's point independently.

By using Fig. 6, a method of using the point that stored in an IC card that is the fifth preferred embodiment of a present invention is explained.

In this system, like the description above, when a customer purchases goods in the vending machine and pays a price in the electronic money, the application provided by a manufacturer of the vending machine can memorize a point in an area for the manufacturer of an IC card 1.

A conventional work that a customer collected seals which a soft drink manufacturer stuck on a can, to the pasteboard are becomes unnecessary. Because a point is accumulated to the IC card automatically when a customer shops in the vending machine by using a card. Therefore, this method has merit for a customer.

When a customer applies by using saved point that money to obtain a giveaway, the method that needs the two procedures are thought. First, the terminal device of a manufacturer or a store has to print out the electronic data that shows the number of points in the IC card to the paper. Second, a customer has to sticks printed point on a postal card. After that procedure, customer can apply. The application of a point stored in an IC card by using that method is inconvenient, comparing with application by a conventional method of sticking a seal on a pasteboard and mailing to the mailbox.

This preferred embodiment dissolves this inconvenience.

The point management system of this preferred embodiment is comprised the IC card 1 for a customer, an application center 91 of a manufacturer, reference center 93 that does individual certification and vending machine 95 with a application function.

The IC card 1 for a customer has the memory 11 includes point storage area 11-1 to store a point and a general peculiar card number 1 that can be used as an ID number to specify an individual.

The application center 91 in a manufacturer has an application table 911 which stores card number 17 and the number of points that corresponded to the card number are stored.

The reference center 93 has a reference table 931 which stores a card number, the name of the owner of a card, an address, age, a telephone number, etc. The reference center 93 can draw out the address, the name, etc. of an owner from the

card number.

The vending machine 95 has a control unit 951, a communication unit 952 and an encryption unit 953. The vending machine 95 can transmit a card number and a point to application center 91. The vending machine 95 has also a reading and writing apparatus to access the point information of the IC card 1.

In this system, when a customer inserts IC card 1 into the reading and writing apparatus of vending machine 95 and purchases an goods as usual, the vending machine 95 writes a point in IC card 1.

If the point reaches a score that is possible to subscribe, vending machine 95 informs a customer that it has been achieved to the score that is possible to subscribe. The customer conveys the intention of subscription to the apparatus by using a button, etc. The vending machine 95 that a customer taught the intention of subscription withdraw a point from the IC card 1 of a customer. Simultaneously, the vending machine 95 acquires and codes the card number of a card and transmits 2 data, that is, card number data and data of the number of points to the application center 91.

The application center 91 inquires of reference center 93 about a sent card number, gets individual information such as the address and the name of a card owner and sends a gift, etc. to the address.

In case of a lottery, the application center 91 holds the point and the card number of a customer until a lottery day and inquires of the reference (individual certification) center 93 about the card number only of a prizewinner.

In this preferred embodiment, one manufacturer can deal with several kinds of a point. During campaigning for limited term, a customer can subscribe by storing point only the term separately with a point at the time of normal purchase.

By using a leased line between the vending machine 95 and the application center 91, safety at the time of subscribing can be improved. To the contrary, by connecting this application center 91 and a general telephone line, the customer can subscribe by using the personal computer and the telephone that are in the home. That is, use selfishness can be improved.

The application center 91 as well as the reading and writing apparatuses such as a vending machine and a personal computer terminal can have the function that read out data from IC card 1.

Of course, the reading and writing apparatus in a store can have this function.

By the way, in the conventional point system using a seal, etc, a point between individuals can be exchanged easily. The point data stored in an IC card is electronic information. Therefore, it is possible between individuals to transmit point data, as electronic money can be transmitted.

The terms manufacturer or the store used in this specification means not only

an organization that manufactures or sales a material goods but also a bank or a restaurant that provide a service or an organization that manufacture or provide immaterial goods such as information.

In addition, it may means the public organization that provides administrative service, etc..

Conventionally, the manufacturer and the store provided service by using a point for a customer by various methods, and therefore, the customer had a problem of having to manage many kinds of pasteboards or cards.

The collected point was being stuck on a pasteboard and a postal card and was being mailed except the use in the store and was being exchanged to the goods, etc..

The present invention can solve a conventional problem. The points provided by several manufacturers and stores can be managed by one card by using this invention.

In addition, the group point, which is managed in common in the related companies, can also be managed by one card besides the point of each store or manufacturer according to a present invention.

And, according to a present invention, by transmitting a point stored in a card, the point that a customer collected can be sent.

In the IC card, which has several applications of a present invention, an operation of other applications in the card and an operation of a point management application can cooperate.

By this cooperation, the payment and the point acceptance can be done by one card.

While we have shown and described several embodiments in accordance with our invention, it should be understood that disclosed embodiments are susceptible of changes and modifications without departing from the scope of the invention. Therefore, we do not intend to be bound by the details shown and described herein but intend to cover all such changes and modifications a fall within the ambit of the appended claims.

What is claimed is:

1. An IC card comprising:
  - a memory having plurality of point storage area storing point data which are given corresponding to customer's use; and
  - a point management application which manage accessing to said memory.
2. An IC card according to claim 1,
  - wherein said point management application distinguishes data transmitted from a reading and writing apparatus of several stores and records a point in the area to record the from within said plurality of point storage area of said memory.
3. An IC card according to claim 2,
  - wherein said point management application allows the access of the area that corresponded to transmitted data and prohibits the access to other areas.
4. An IC card according to claim 2,
  - wherein said point management application allows writing point data into the area that corresponded to transmitted data, and prohibited the writing to other areas and other areas, and reading the point data from both an area that corresponded to transmitted and another store's area.
5. An IC card according to claim 2,
  - wherein said point management application subtracts said point data and rewrites subtracted point data when point data is used.
6. An IC card according to claim 2,
  - said point management application comprising:
    - a crypt data processing unit which processes transmitted crypt data;
    - a point data processing unit which calculates transmitted point data; and
    - a control unit which controls said crypt data processing unit and said point data processing unit,
  - wherein said control unit controls accessing said point storing area.
7. An IC card according to claim 2,
  - wherein said memory has using history storage area which stores times of using.
8. An IC card according to claim 2,
  - further comprising an application which manage personal data,
  - wherein memory has a personal data area which stores personal data.
9. An IC card according to claim 2,
  - further comprising an application which executes electronic money liquidation
10. An IC card according to claim 2,
  - further comprising an application which executes credit liquidation

11. An IC card according to claim 2,

wherein said memory has each store point area which stores point data provided by each store and group point area which stores group point data used by several stores, and said point management application writes said point data into both said store point area and group point area when point data are issued by said store.

12. A point management system comprising:

a point system management apparatus which manage and register a store which participates point system;

an IC card having a memory having plurality of point storage area storing point data which are given corresponding to customer's use and a point management application which manage accessing to said memory; and

a reading and writing apparatus which reads and writes said IC card by using key data provided by said point system management apparatus.

13. A point management system according to claim 12,

wherein said point management application distinguishes data transmitted from the reading and writing apparatus of several stores and records a point in the area to record the from within said plurality of point storage area of said memory.

14. A point management system according to claim 13,

wherein said point system management apparatus provides a register store number and crypt key to said store participating point system,

said reading and writing apparatus accesses said IC cards by using crypt data which combined said register store number and said crypt key, and

said point management application determines allowing access of said reading and writing apparatus by distinguishing said crypt data transmitted from said reading and writing apparatus.

15. A point management system according to claim 13,

said point management application comprising;

a crypt data processing unit which processes transmitted crypt data;

a point data processing unit which calculates transmitted point data; and

a control unit which controls said crypt data processing unit and said point data processing unit,

wherein said control unit controls accessing said point storing area.

16. A point management system according to claim 15,

wherein said reading and writing apparatus transmits order of subscribing point to said IC card,

said point data processing unit subscripts point data, and

said control unit rewrites subscribed point data to said memory.

17. A point management system according to claim 15,

further comprising a personal computer which read said point data from said IC card, and transmit said point data to said reading and writing apparatus set up in an internet store through a telephone line.

18. An point system management system comprising:  
a reference center which reference customer's data;  
an vending machine which sales goods by exchange the money of an IC card and transmit a point data read from said an IC card; and  
an application center which receive said point data and hold card number and said point,

wherein said application center does a lottery and send a gift to the winner by using information of said reference center.

19. An reading and writing apparatus which reads and writes point data of an IC card,

wherein reading and writing apparatus access one point management application of said IC card by using key data which is to originally for registered store.

20. An point system management apparatus which controls point management system,

wherein said point system management apparatus issue the different key data, to access a point management application of an IC card to each store when registering said store.

Abstract

The present invention is to manage points provided by plural manufacturers and plural store by one card.

To achieve this object, the point management system of this invention has a point system management apparatus 3 that administers the whole point system, a reading and writing apparatus 5 which reads out/write the data from/into an IC card, and an IC card 1 which has a memory 11 having plurality of point record areas that store point data transmitted from the said reading and writing apparatus and a point management application 13 that controls the access of the above memory to the point record area.



FIG.1

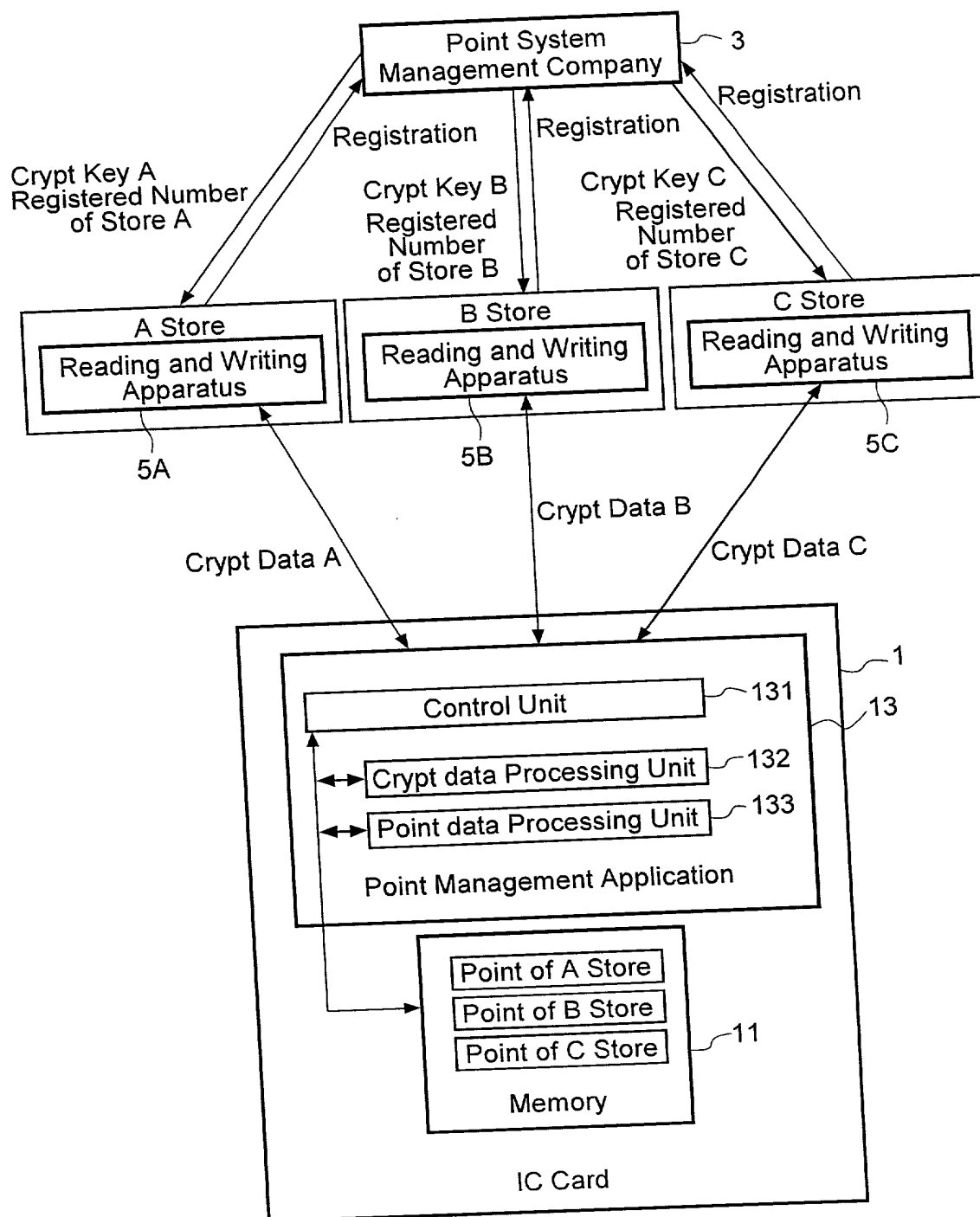


FIG.2

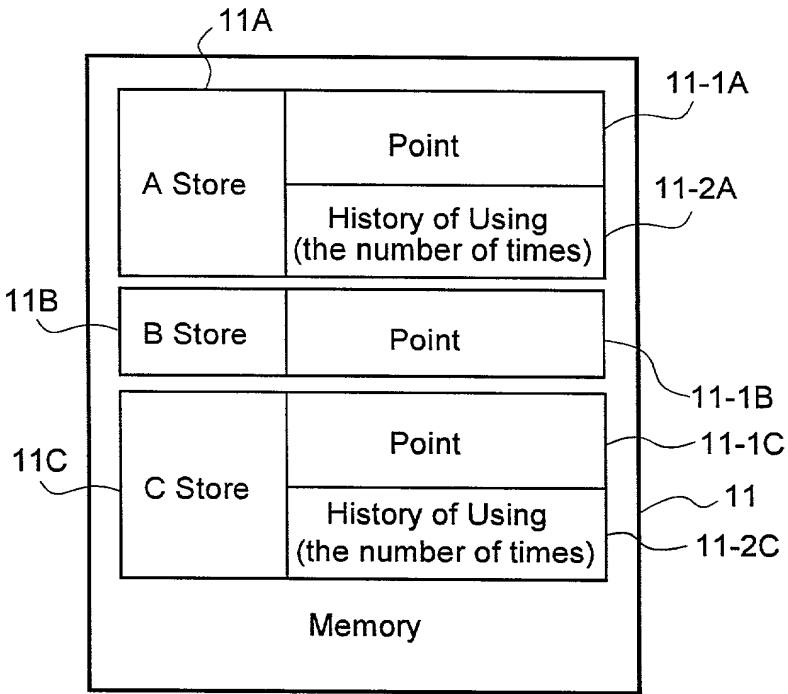


FIG.3

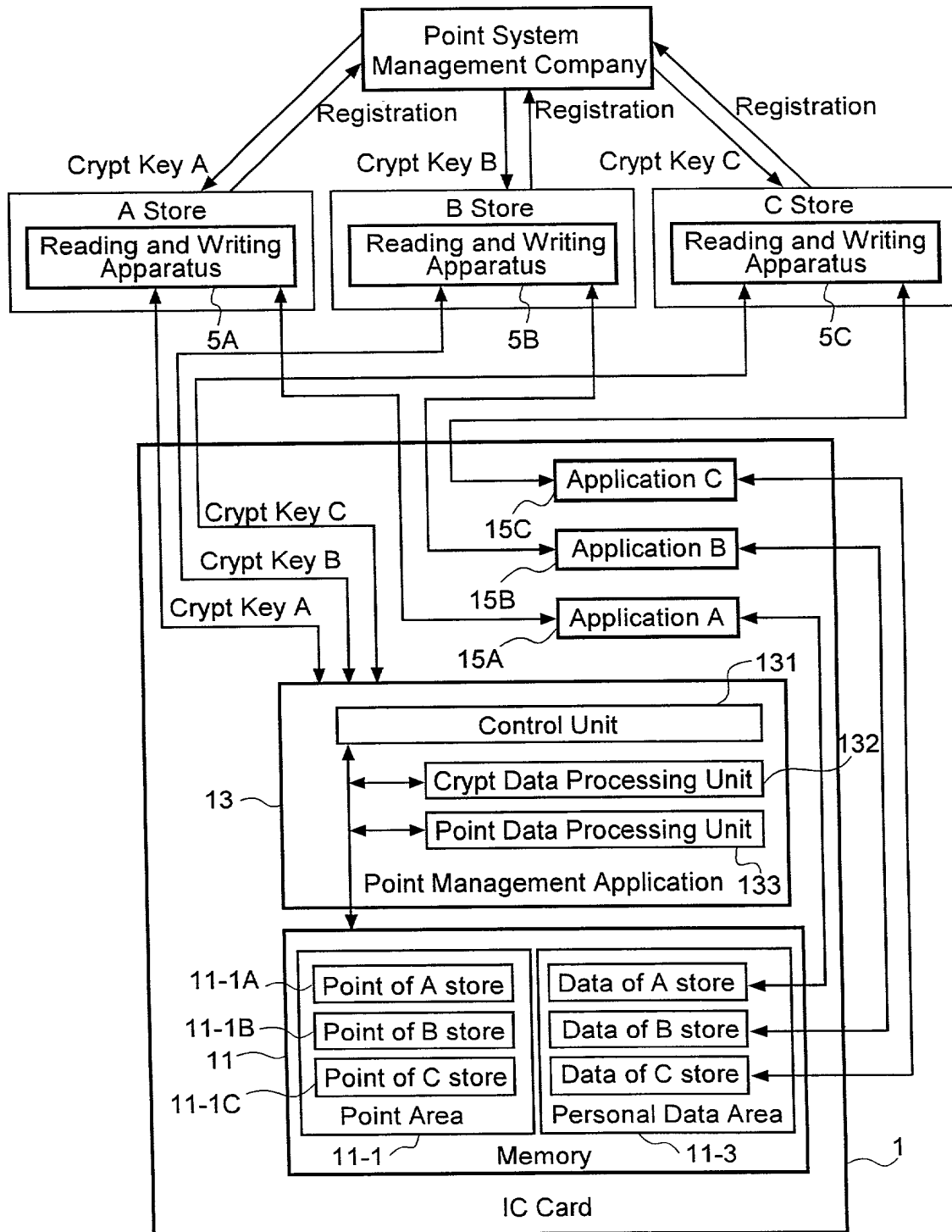
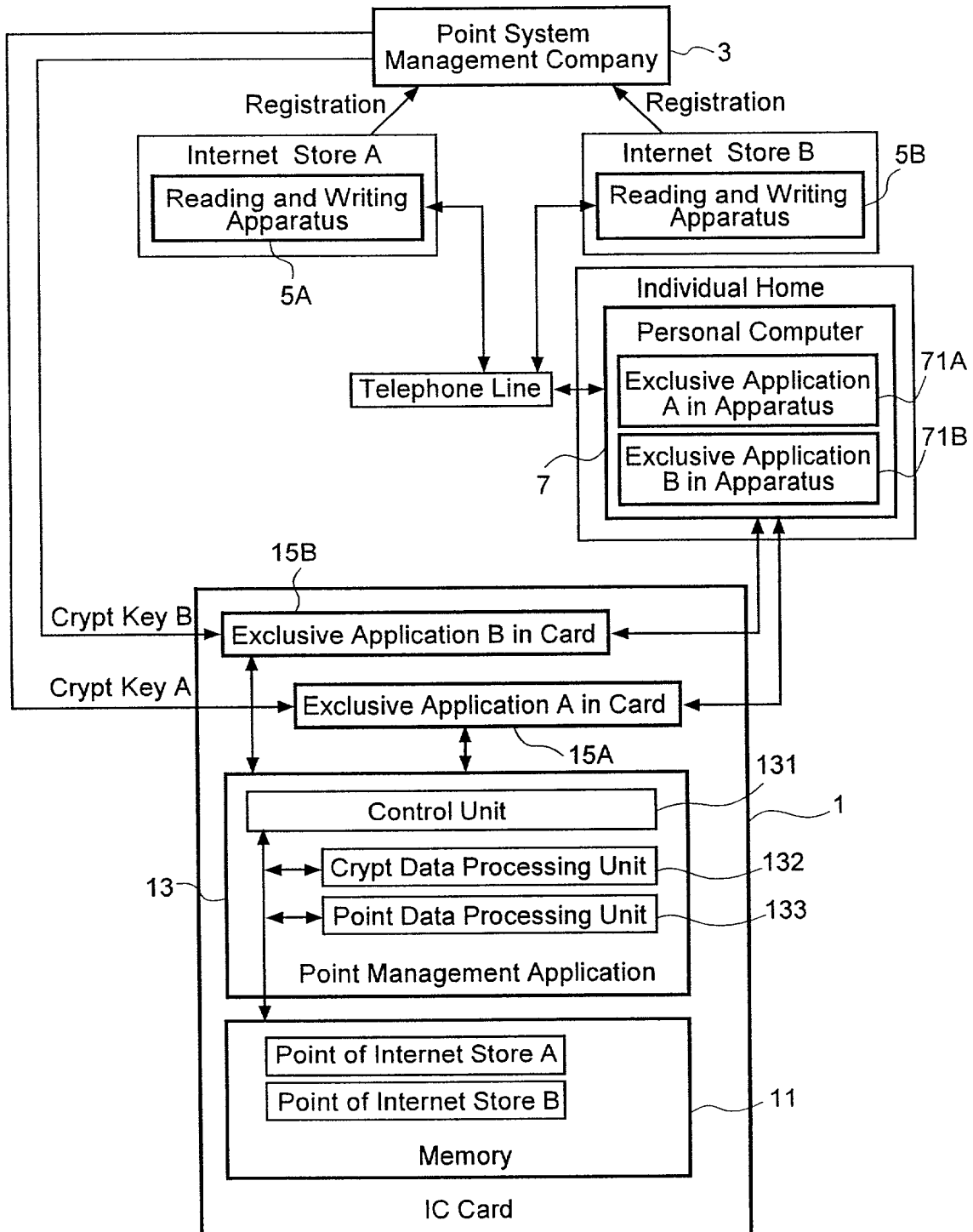


FIG.4



# FIG.5

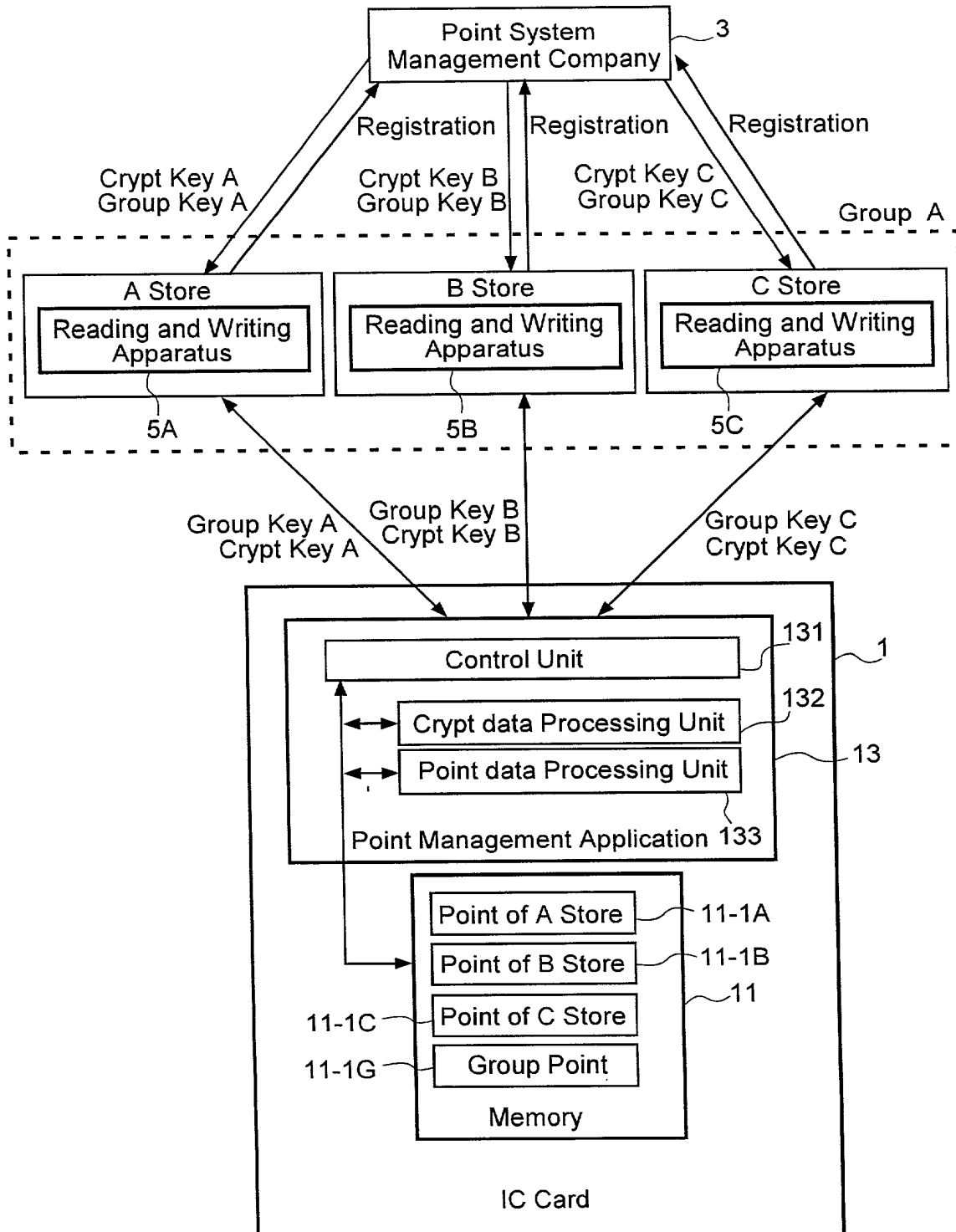
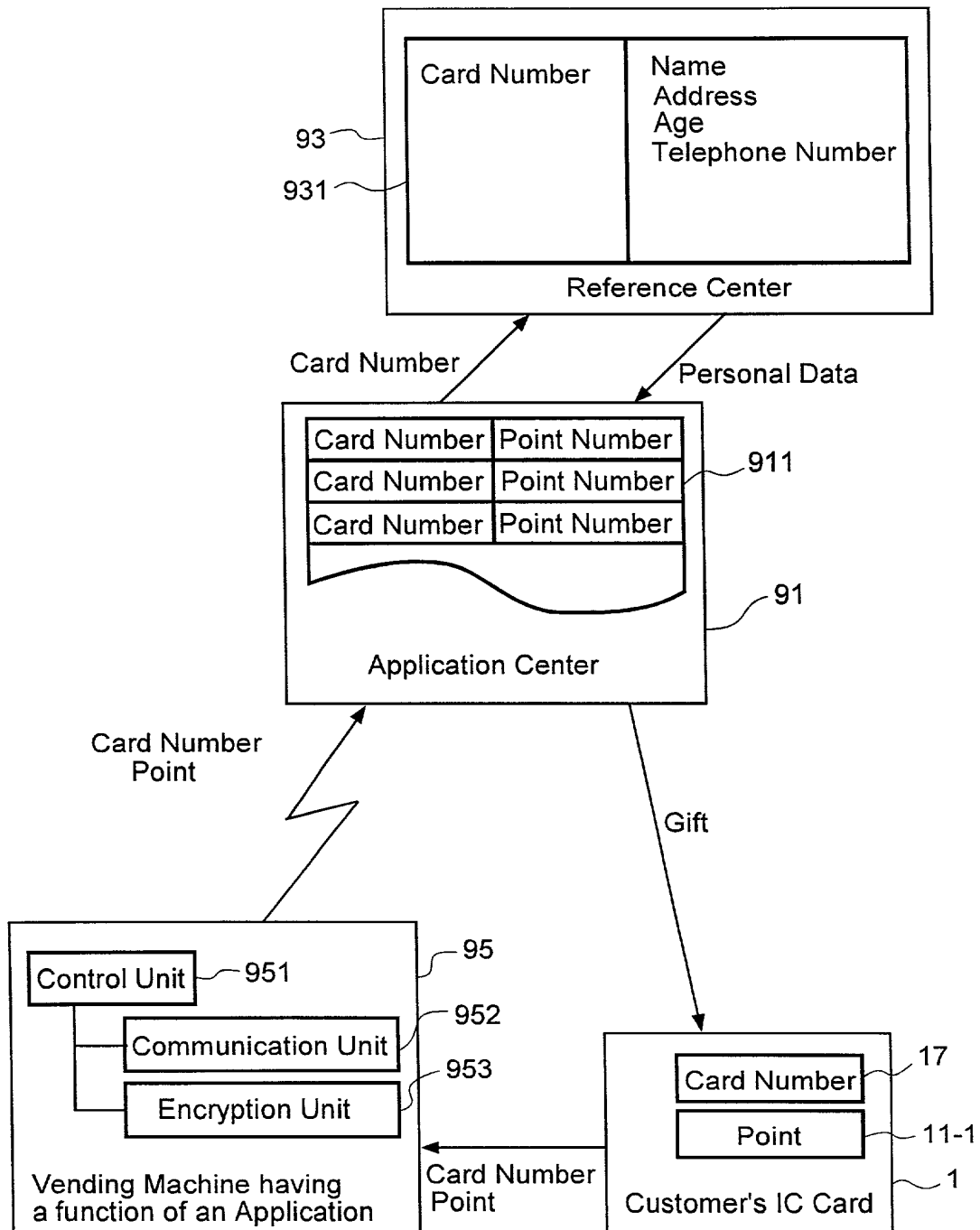


FIG.6



# DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name, I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

"POINT MANAGEMENT SYSTEM"

the specification of which (check one) ☒ is attached hereto.  
☐ was filed on \_\_\_\_\_  
as Application Serial No. \_\_\_\_\_  
and was amended on \_\_\_\_\_  
(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)	Country	Filing Date	Priority Claimed
P10-050404 (Number)	Japan (Country)	3/3/1998 (Day/Month/Year Filed)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	<input type="checkbox"/> Yes <input type="checkbox"/> No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)	(Filing Date)	(Status: patented, pending, abandoned)
_____ (Application Serial No.)	_____ (Filing Date)	_____ (Status: patented, pending, abandoned)
_____ (Application Serial No.)	_____ (Filing Date)	_____ (Status: patented, pending, abandoned)
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I hereby appoint as principal attorneys; Donald R. Antonelli, Reg. No. 20,296; David T. Terry, Reg. No. 20,178; Melvin Kraus, Reg. No. 22,466; Stanley A. Wal, Reg. No. 26,432; William I. Solomon, Reg. No. 28,565; Gregory E. Montone, Reg. No. 28,141; Ronald J. Shore, Reg. No. 28,577; Donald E. Stout, Reg. No. 26,422; Alan E. Schiavelli, Reg. No. 32,087; James N. Dresser, Reg. No. 22,973 and Carl I. Brundidge, Reg. No. 29,621 to prosecute and transact all business connected with this application and any related United States application and international applications. Please direct all communications to the following address:

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United State Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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